IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (currently amended): An outer tube, ~~which is~~ comprising:

a body made of silicon carbide, ~~and which has~~ configured to be used in a thermal treatment system and having an upper portion, ~~closed and~~ a lower portion ~~opened~~ and a flange, [[has]] wherein the upper portion is closed, the lower portion is open and is formed with a tapered portion ~~so as to expand~~ expanding ~~a diameter thereof~~ toward a lower end ~~thereof~~ of the body, ~~and has a~~ the flange is formed on an outer peripheral side of the lower portion,[[;]] and the following conditions [[being]] are met:

1) a ratio of t_a/D_1 is from 0.0067 to 0.025,

2) a product of $t_a \times D_1$ is from 600 to 4,000 (mm^2),

3) $(D_{F2}-D_{F1}) \times t_c/(D_1 \times t_a)$ is from 0.1 to 0.7, and

4) L_1/L_2 is from 1 to 10;

where the ~~outer~~ lower ~~tube~~ portion has a thickness of t_a (mm) and an inner diameter of D_1 (mm), the flange has a thickness of t_c (mm), an inner diameter of D_{F1} (mm) and an outer diameter of D_{F2} (mm), and the tapered portion ~~has~~ tapers such that the lower portion is expanded from the inner diameter D_1 to the inner diameter D_{F1} over a height L_1 (mm) and an expanse of L_2 (mm)~~, and where the outer tube is configured to be used in a thermal treatment system~~.

Claim 2 (original): The outer tube according to Claim 1, wherein the tapered portion has upper and lower edges of an inner peripheral side rounded with a radius of 2 mm (R2) or above.

Claim 3 (original): The outer tube according to Claim 1, wherein the tapered portion has an inner surface having a surface roughness Ra of not greater than 7 μm.

Claim 4 (currently amended): A thermal treatment system [[using]] comprising:

an outer tube, which is made of silicon carbide, and which wherein the outer tube has

an upper portion, closed and a lower portion opened and a flange, [[has]] the upper portion is

closed, the lower portion is open and is formed with a tapered portion so as to expand

expanding a diameter thereof toward a lower end thereof of the outer tube, and has a the

flange is formed on an outer peripheral side of the lower portion, [[;]] the following conditions

[[being]] are met:

1) a ratio of t_a/D_1 is from 0.0067 to 0.025,

2) a product of $t_a \times D_1$ is from 600 to 4,000 (mm^2),

3) $(D_{F2} - D_{F1}) \times t_c/(D_1 \times t_a)$ is from 0.1 to 0.7, and

4) L_1/L_2 is from 1 to 10;

where the outer tube has lower portion has a thickness of t_a (mm) and an inner

diameter of D_1 (mm), the flange has a thickness of t_c (mm), an inner diameter of D_{F1} (mm)

and an outer diameter of D_{F2} (mm), and the tapered portion [[has]] tapers such that the lower

portion is expanded from the inner diameter D_1 to the inner diameter D_{F1} over a height L_1

(mm) and an expanse of L_2 (mm).

Claim 5 (original): The thermal treatment system according to Claim 4, wherein the

tapered portion has upper and lower edges of an inner peripheral side rounded with a radius

of 2 mm (R2) or above.

Claim 6 (original): The thermal treatment system according to Claim 4, wherein the

tapered portion has an inner peripheral side having a surface roughness Ra of not greater than

7 μm.

Claim 7 (original): The thermal treatment system according to Claim 4, wherein the height L_1 of the tapered portion satisfies the relationship of $H/4 < L_1 < 3 \cdot H/4$, where a distance between a lowest end of a heater and a bottom surface of the outer tube is H (mm).

Claim 8 (new): An outer tube for a thermal treatment system, comprising:

a body made of silicon carbide, configured to surround an inner tube of a thermal treatment system and having an upper portion, a lower portion and a flange, wherein the upper portion is closed, the lower portion is open and is formed with a tapered portion expanding toward a lower end of the body, the flange is formed on an outer peripheral side of the lower portion, a ratio of t_a/D_1 is from 0.0067 to 0.025, a product of $t_a \times D_1$ is from 600 to 4,000 (mm²), $(D_{F2}-D_{F1}) \times t_c/(D_1 \times t_a)$ is from 0.1 to 0.7, and L_1/L_2 is from 1 to 10, where the lower portion has a thickness of t_a (mm) and an inner diameter of D_1 (mm), the flange has a thickness of t_c (mm), an inner diameter of D_{F1} (mm) and an outer diameter of D_{F2} (mm), and the tapered portion tapers such that the lower portion is expanded from the inner diameter D_1 to the inner diameter D_{F1} over a height L_1 (mm) and an expanse of L_2 (mm).